PROGRESS IN SURFACE SCIENCE, VOLUME 31

AUTHOR INDEX

Abkowitz, M.A. 57
Adams, D.L. 129
Adamson, A.W. 57
Adler, J.G. 280, 281
Affrossman, S. 282
Ahmad, Z.A. 58
Akhter, P. 129
Akhter, S. 126
Alexander, A.E. 59
Alser, B.J. 128
Altwein, M. 281
Anderson, J.S. 55
Anderson, P.W. 128, 278, 282
Andersson, S. 126
Angelov, G. 126
Aoyagi, Y. 58
Applebaum, J. 282
Apsley, N. 58
Archer, P.B.M. 57, 58, 59
Archer, W.L. 283
Arias, J. 127, 128
Armstrong, N.R. 56
Aroca, R. 57
Aruga, T. 126, 128, 129
Ashida, M. 56
Au, C. 58
Austin, I.G. 56

Baddorf, A. 127
Baenziger, N.C. 55
Bagus, P.S. 129
Bahra, G.S. 56, 60
Baird, T. 56
Baker, S. 59
Banyai, P. 59
Bao, S. 125
Barbe, D.F. 58
Bardeen, J. 282
Barendas, A.W. 57
Barger, W.R. 60
Barker, R.C. 279, 283
Barlow, B.A. 56
Barnes, C. 129
Barrett, P.A. 54, 55
Bartosch, C.E. 125
Bathe, H. 278
Batra, I.P. 127, 128, 129, 130
Batzel, D.A. 60
Bayman, A. 283
Beales, K.J. 58
Becker, B.A. 128
Behm, R.J. 128, 129
Belghachi, A. 60
Belin, M. 281, 283
Bell, A.T. 129
Benesh, G.A. 127
Benjamin, J.D. 60
Bennett, A.J. 127
Bennett, W.E. 55
Berko, A. 126
Berkowitz, J. 59
Bertel, E. 127, 127
Besold, G. 128
Beynon, J.H. 58
Bilton, J.A. 54
Binnig, G. 129
Birgeneau, R.J. 129
Blanc, J.P. 59
Blasquez, G. 59
Blaszczyszyn, M. 126
Blaszczyszyn, R. 126
Bloor, J.E. 57
Bogtina, N.I. 283
Bohnen, K.P. 129
Boiziau, C. 128
Bonzel, H.P. 125, 126, 127, 129
Borensztein, Y. 125
Bornmann, J.A. 60
Bott, B. 57, 59
Bowles, A.J. 280
Bowser, W.M. 281, 283
Bozso, F. 127, 128
Bradbrook, E.F. 54, 55
Bradshaw, A.M. 126
Braun, A. 54
Brillouin, L. 281
Broberg, D.E. 55
Broden, G. 125
Brodie, D.E. 55
Brooks, R.S. 128
Brown, C.J. 55
Brown, N.M.D. 278, 279, 280, 281, 282, 283
Buchholz, J.C. 56, 58

Bullett, D.W. 127
Burr, P.M. 60
Burstein, E. 281
Byrne, G.T. 54

Calisti, S. 129
Calvin, M. 56
Campana, J.E. 58
Cannon, C.G. 57
Capehart, T.W. 126
Carpenter, L.G. 279
Cerrina, F. 127
Chadwick, A.V. 56, 57, 58, 60
Chan, C.M. 129
Chandrasenkar, B.S. 280
Chapman, B.N. 279
Chen, J.M. 125, 126, 128
Chen, T.T. 281
Chinn, M.O. 129
Christopher, J.E. 279
Chubb, S.R. 125, 127
Chupka, W.A. 59
Ciraci, S. 129, 130
Clark, J.M. 278, 279, 280, 283
Clenshaw, C.W. 282
Coleman, M.N. 282
Coleman, R.V. 278, 279, 280, 281, 283
Colley, S. 281
Collins, R.A. 56, 58, 59, 60
Colwell, B.H. 279
Condon, E.U. 281
Conrad, H. 128
Contour, J.P. 58
Cook, A.H. 54, 55
Cook, M.J. 59, 60
Cooper, L.N. 278
Copel, M. 129
Cousty, J. 126, 127, 128 129
Couves, J.W. 56, 60
Cox, G.A. 58
Crane, S.W. 60
Crowell, J.E. 125
Curtis, A.R. 282

Dahlberg, S.C. 58
Dandridge, A.G. 54
Daniel, M.F. 59, 60
Dargis, A.B. 281
Davidson, E.R. 57
Davie, P.J. 126
Davies, S.L. 59
Davydov, V.Ya. 58
Day, P. 58, 59, 60
de Backer, M.G. 57
de Broglie, L.V. 278
de Cheveigne, S. 281, 283
de Diesbach, H. 54
Decius, I.C. 55
Defourneau, D. 281
Delmas, B. 281
Demerdache, A. 57
Dent, C.E. 54, 55
dePaola, R.A. 125, 126
Devaux, P. 58
D'Amico, K.L. 129
Diehl, M.D. 129
Diehl, R.D. 129
Ding, M.Q. 129
Dobson, P.J. 126
Doering, D.L. 128
Dose, V. 127, 128
Dow, W. 55
Drescher, H.A. 54
Dubois, L.H. 126
Dugay, M. 59
Duke, C.B. 278
Dunn, A.J. 59
Dunning, P.B.M. 58
Dushman, S. 279

Eberhardt, W. 125
Ebert, A.A. 57
Eccles, A.J. 56
Eley, D.D. 55, 56, 58
Ellis, D.E. 127
Elovich, S.Yu. 59
Endriss, H. 128
Engelhardt, R. 56
Enta, Y. 130
Ercolani, C. 57, 59
Ernst-Vidalis, M.L. 126
Ertl, G. 125, 126, 128, 129
Esaki, L. 278, 279
Evans, R.C. 128
Ewen, R.J. 57, 59
Ewert, S. 279
Eyres, B.L. 59

Fadley, C.S. 125
Fain, S.C., Jr. 129
Faldt, A. 126
Fan, W.C. 128
Fedorus, A.G. 125, 126
Fehrs, D.L. 128
Feibelman, P.J. 127
Feldmann, C.A. 56
Ferguson, A.J.L. 279
Field, B.O. 279, 280, 281
Fielding, P.E. 55, 58
Figgis, B.N. 55

Finkenrath, H. 281
Fischer, J.C. 278
Fisher, G. 281
Floyd, R.B. 278, 280, 282
Flynn, D.K. 128, 129
Foiles, S.M. 129
Folman, L.Ng.M. 125
Fowler, M.T. 59
Fowler, R.H. 278
Fox, L. 282
Francis, S.M. 129
Frank, K.-H. 127
Freas, R.B. 58
Freeman, A.J. 125, 127
Frenkel, J. 278
Frenken, J.W.M. 129
Freund, H.-J. 127
Friedel, M.K. 55
Frigerio, N.A. 57
Froberg, C.E. 282
Frye, D.A. 55
Fryer, J.R. 56, 57, 59
Fu, C.W. 60
Fujiyoshi, Y. 56
Fulton, A. 59
Fung, C.D. 60
Fustoss-Wegner, M. 55

Gadzuk, J.W. 280
Gaerttner, M.R. 279, 280
Gaines, G.L. 59
Games, D.E. 58
Gamov, G. 281
Gano, K. 60
Garbuzov, D.Z. 56
Garcia, N. 127
Garfunkle, E.L. 125, 129
Gauthier, S. 283
Geiger, A.L. 280
Gentry, S.J. 60
Gerard, K. 128
Gerber, Ch. 129
Gerlach, R.L. 126, 128
Germain, J.P. 59
Giaever, I. 278, 279
Gidley, D.W. 126
Ginnai, T.M. 283
Godwin, L.M. 280, 283
Gold, A.A. 59
Gold, H.S. 279, 280
Goldberg, S.M. 125
Goldmann, A. 56
Goldsmith, G.J. 60
Gomer, R. 125
Gopel, W. 57, 58
Gottlieb, H.B. 57
Gould, R.D. 56
Gouterman, M. 57
Graf, K. 58
Graham, T.P. 279, 280
Graham, W.R. 129
Greelief, C.M. 126
Greggi, J., Jr. 56, 59
Gregson, L.D. 281
Grider, D. 125
Griffin, T. 281
Griffiths, C.H. 55
Grobman, W.D. 56
Guillot, C. 127
Gupalo, M.S. 126
Gurney, R.W. 127, 281
Gustafsson, T. 129
Gutman, D. 59
Gutmann, F. 58, 58

Haas, T.W. 126
Haberland, H. 125, 126, 128
Hagstrum, H.D. 128
Hahn, R.A. 59
Hall, J.T. 278, 280, 283
Haller, G.L. 279, 283
Hamann, C. 57
Hamann, D.R. 127
Hammer, L. 128
Hanack, M. 55
Handy, R.M. 280
Hanrahan, C.P. 127
Hansma, P.K. 278, 279, 280 281, 283
Hara, M. 56
Harada, Y. 56
Harrison, K. 126
Harrison, K.J. 60
Harrison, S.E. 59, 60
Harrison, W.A. 282
Hart, H.R., Jr. 278
Hass, G. 280
Hauffe, K. 59
Hayden, B.E. 126
Hazeldine, D.J. 56, 58
Heavens, O.S. 279
Hebard, A.F. 281
Heiland, G. 59
Heilmeier, G.H. 58, 59, 60
Heine, V. 129
Heinz, K. 128
Heitz, E. 283
Hempstead, M.R. 55
Hertrich, H. 128
Herzberg, G. 277
Heskett, D. 125, 127
Hester, J.R. 127

Hill, C.A.S. 57
Hill, H.C. 58
Hiller, W. 55
Hilliard, L.J. 279
Hilliard, L.S. 280
Hipps, K.W. 279
Hiskes, J.R. 127
Ho, K.-M. 129
Ho, W. 125
Hochst, E. 56
Hodge, P. 60
Hoffmann, F.M. 125, 126
Hohlfeld, A. 125
Holland, L. 279
Holm, R. 281, 282
Holzl, J. 126, 127
Honeybourne, C.L. 57, 59
Hoorfar, A. 60
Hopkins, L.J. 128
Hor, A.-M. 57
Horley, C.C. 280, 281
Horn, J.L., Jr. 281
Horn, K. 125, 127
Horn, P.M. 129
Hoskins, B.F. 55
Hrbek, J. 125, 126
Hufner, S. 56
Humphrey, P. 56

Ibach, H. 128
Ignatiev, A. 128, 129
Ikedo, S. 280
Ikemoto, I. 55
Inokuchi, H. 57
Inuishi, Y. 58, 60
Ionescu, N.I. 59
Ishida, H. 127, 128, 129
Ishizuka, K. 56
Iwan, M. 56
Iwatsua, F. 56
Iyechika, Y. 55

Jackson, A.H. 58
Jackson, J.E. 281
Jacob, W. 127
Jacobs, S. 125
Jacobson, K.W. 129
Jaklevic, R.C. 278, 279, 280
Jamison, K.D. 128, 129
Jarvis, N.L. 60
Jeffery, P.D. 60
Jeffreys, B.S. 282
Jeffreys, H. 281
Jeffreys, H.J. 282
Jennings, C. 57
Jennings, R.J. 281
John, W. 127
Johnson, A.M. 278, 280
Jones, T.A. 56, 57, 59
Josephson, B.D. 278
Jostell, U. 126
Joswig, H.-J. 57
Joyner, R.W. 58

Kalina, D.W. 60
Kamaratos, M. 126
Kane, O.E. 282
Kaneto, K. 58, 60
Karasek, F.W. 55
Karo, A.M. 127
Kasai, K. 60
Kasowski, R.V. 130
Kato, T. 128, 129
Kaufhold, J. 59
Kearns, D.R. 56
Keil, R.G. 279, 280
Kendall, D.N. 57
Kendelewicz, T. 130
Kenney, M.E. 60
Kevan, S.D. 125
Kiejna, A. 127
King, D.A. 125, 128, 129
Kinoshita, T. 130
Kirin, I.S. 56
Kirkley, J. 283
Kirner, J.F. 55
Kirschstein, B. 282
Kiselev, A.V. 58
Kiskinova, M. 126, 127
Klein, J. 281, 283
Klein, J.M. 280
Kleitman, D. 60
Klusty, M. 60
Knight, P.C. 58
Knudsen, B.I. 57
Ko, W.H. 60
Kobayashi, H. 58
Kobayashi, T. 56
Kobel, W. 55
Koch, E.E. 56, 127
Koenig, J.L. 282
Kohn, W. 127
Kojima, K. 58
Kolyadin, A.B. 56
Kono, S. 125, 130
Korman, C.S. 278, 280, 281, 283
Kotlyar, I.R. 57
Kovacs, G.J. 59
Koymen, A.R. 126
Krakauer, H. 127
Kramers, H.A. 281

Krans, R.L. 129
Kubota M. 129
Kcharski, E.S. 55
Kuppers, J. 125, 126, 128
Kuroda, H. 55
Kuyatt, C.E. 128
Kyokane, J. 58

Lackey, D. 125
Lambe, J. 278
Lambert, R.M. 126, 129
Lamble, G.M. 128
Lander, J.J. 126
Landon, M. 56
Lang, E. 128
Lang, N.D. 127
Langan, J.D. 281, 283
Langley, A.J. 280
Langmuir, I. 128
Langton, J. 59
Lapeyre, G.J. 127
Larbi, A. 59
Lau, J.C. 278, 280, 283
Laurensen, L. 279
Laurs, H. 59
Leavitt, J.J. 55
Lecante, J. 125, 127
Lee, J. 127
Lee, S.B. 126
Leger, A. 281
Lenfant, P. 58
Lever, A.B.P. 55
Lewis, B.F. 281, 283
Leznoff, C.C. 55
Lindau I. 130
Lindgren, S.A. 125, 126
Lindroos, M. 129
Linkous, C.L. 56
Linstead, R.P. 54, 55
Liouville, J. 281
List, R.S. 130
Liu, W. 55
Lorenz, K. 60
Loutfy, R.O. 57
Lowe, A.R. 54
Ludewig, K.H. 59
Luftman, H.S. 125, 126
Luu, T. 281
Lychev, A.A. 56
Lyons, L.E. 56, 59

Machrakis, M.S. 128
MacRae, A.U. 126
Magno, R. 280
Maleysson, C. 59
Malter, H. 56
Maly, R. 128
Marbrow, R.A. 129
Marcus, S.M. 282
Markart, K. 126
Marks, L.D. 129
Martin, R.L. 55
Martin, R.M. 127, 128
Mason, R. 55
Mason, S.A. 55
Masuda, K. 58, 60
Mayer, H. 129
Mayers, D.F. 282
Mazur, U. 279
McConville, C.F. 125
McGovern, I.T. 127
McIntyre, L. 56
McKeown, N.B. 60
McMillan, W.L. 278
McMorris, I.W.N. 280, 281
McTague, J.P. 129
Meadows, B. 56
Meclewski, R. 126
Medema, J. 59
Medvedev, V.K. 125, 126
Meenan, B.J. 283
Megerle, K. 278
Meissner, W. 282
Melnik, M. 55
Merrill, J.R. 281
Metiu, H. 127, 128
Miasik, J.J. 56, 57
Miles, J. 280
Miller, A.R. 127
Mills, D.L. 128
Mindorff, M.S. 55
Miranda, R. 129
Mlynczak, A. 128
Mockert, H. 58
Mohammed, K.A. 56, 60
Monacelli, F. 59
Moncton, D.E. 129
Monjushiro, H. 280
Moritz, W. 129
Morris, G.C. 59
Morris, R.C. 279
Morrison, J. 126
Moser, F.H. 55
Moser, H.R. 125
Mosesman, M. 281
Mott, N.F. 56, 282
Mross, W.D. 129
Mucchielli, F. 128
Muller, K. 126, 128
Mullins, D.R. 125
Munn, R.W. 58
Murata, K. 280

Murata, Y. 56, 126, 128, 129
Muscat, J.P. 127, 128
Musser, M.E. 58
Myl'nikov, V.S. 59
Nagler, S.E. 129
Nakamura, T. 127
Nakayama, M. 128
Namba, S. 58
Nathan, R. 128
Naumovets, A.G. 125, 126
Nayler, R. 280
Nederlof, A.J. 57, 60
Nelson, W.J. 279, 280, 281
Neri, C. 57
Nevin, W.A. 55
Newns, D.M. 127, 128
Ng, L. 126
Niedermayer, R. 128
Nielsen, H.B. 129
Nieuwenhuizen, M.S. 57, 60
Niwa, Y. 58
Noble, E.G. 54
Nohr, R.S. 55
Nordheim, L. 278
Norman, D. 128
Norskov, J.K. 129
Novaco, A.D. 129
Nozawa, T. 60
Nuvolone, R. 128

Oelling, E.M. 129
Ogorodnik, K.Z. 57
Ohno, K. 128
Ohta, M. 60
Ohtomi, K. 128, 129
Oliver, J. 282
Onishi, T. 57
Oppenheimer, J.R. 281
Orem, M.W. 57
Orthmann, E.O. 60
Osborn, R.S. 56
Oxley, O.P. 280

Pack, J.L. 59
Painter, P.C. 282
Palmer, T.F. 56, 58
Palyukh, B.M. 126
Paolucci, G. 126
Papageorgopoulos, C.A. 125, 126, 128
Parikh, M. 283
Parker, S.D. 126
Pate, B.B. 130
Patterson, W.R. 281
Paul, J. 125, 126
Pearce, M.S. 279
Penn, D. 128
Penn, D.R. 280
Permien, T. 56
Pethrick, R.A. 283
Pettit, R.B. 280
Petty, M.C. 59, 60
Phelps, A.V. 59
Phillips, J.C. 126
Pianetta, P. 130
Pines, D. 128
Pinzuti, L. 57
Pirug, G. 125, 127
Plummer, E.W. 125, 127, 128, 280
Ponec, V. 129
Pope, M. 56
Popovic, Z.D. 56, 60
Posternak, M. 127
Price, M.G. 58
Prince, K.C. 126
Pritchard, P.G. 280, 281
Putseiko, E.K. 59

Radloff, P.L. 126
Raether, H. 128
Ratinen, H. 281
Rayleigh, Lord 281
Reed, R.I. 58
Reynolds, S. 281
Rhodin, T.N. 126, 128
Richardson, N.V. 129
Rickert, S.E. 60
Rieke, P.C. 56
Ristagno, C.V. 57
Riwan, R. 125, 126, 127, 128, 129
Robert, H. 59
Roberts, G.G. 56, 58, 59, 60
Roberts, M.W. 58
Robertson, J.M. 55
Rodgers, J.S. 280
Roenker, K.P. 279
Roenker, P. 280
Rogers, D. 56
Rohrer, H. 129
Rossi, G. 59
Roussel, J. 128
Rowe, G.A. 55
Rowell, J.M. 278, 280, 282
Rsukada, M. 128
Rundall, F.G. 55

Sadaoka, Y. 58, 59
Sadhir, R.K. 59
Sadoaka, Y. 59
Sakaguchi, M. 60

Saki, Y. 58, 59
Sammes, M.P. 57
Sangster, M.J.L. 281
Sanjana, Z.N. 59
Sartori, G. 57
Sato, N. 57
Saunders, R.A. 58
Sauvage, F.X. 57
Scalapino, D.J. 282, 283
Schaffer, A.M. 57
Schaffroth, Th. 128
Scheidt, W.R. 55
Schein, L.B. 56
Schlabitz, J. 57
Schmeisser, D. 58
Schmidt, G. 128
Schmidt, L.D. 125
Schoch, K.F., Jr. 56, 59
Schott, M. 58, 60
Schroder, W. 126
Schrodinger, E. 278
Schulte, F.K. 127
Scregg, G. 58
Seiyama, T. 58, 59
Seki, K. 57
Semancik, S. 128
Serena, P.A. 127
Sesselman, W. 125, 126
Sevier, K.D. 128
Seymour, P. 55
Sharp, J.H. 56, 57, 58, 59, 60
Shaw, C.G. 129
Shen, L.Y.L. 282
Shewchun, J. 281
Shiba, H. 129
Shigehara, K. 56
Shima, N. 129
Shine, H.J. 57
Shott, P.N. 279, 280, 281
Shumate, P.W. 281
Shurvell, H.F. 57
Sidorov, A.N. 57
Silina, T.V. 58
Simmons, J.G. 282
Simonsen, M.G. 281, 283
Simpson, M. 279
Singh-Boparai, S. 58
Skarlatos, Y. 279, 283
Smereka, T.P. 125, 126
Smith, J.R. 127
Smith, M. 58
Smith, P. 280
Sneddon, I.N. 282
Snow, A.W. 60
Soler, J.M. 127
Solymosi, F. 126
Soma, M. 57
Sommerfeld, A. 278
Somorjai, G. 129
Somorjai, G.A. 56, 125
Soukiassian, P. 125, 126, 127, 129, 130
Specht, E.D. 129
Spicer, W.E. 130
Steinbach, F. 57
Steinhage, P.W. 129
Stickney, R.E. 128
Strahle, J. 55
Strathy, I. 125
Stratton, R. 282
Straus, J. 281
Stuart, R.V. 279
Stymne, B. 57
Suito, E. 56
Sun, Y.-M. 125
Sunjic, M. 125
Surman, M. 125
Surnev, L. 126
Sutherland, G.B.B.M. 57
Suzanne, J. 129
Suzuki, S. 130
Szczurek, A. 60

Takada, M. 60
Takeya, K. 58, 60
Tamaru, K. 57
Tamizi, M. 57
Tatewaki, H. 127
Taylor, J.B. 128
Taylor, K.T. 58
Tcherniac, J. 54
Tegeler, E. 56
Temofonte, T.A. 56, 59
Terakura, K. 127
Terenin, A.N. 57
Thiel, P.A. 128, 129
Thomas, A.L. 55
Thomas, D.E. 280
Thomas, J. 54
Thomas, N.J. 59
Thomas, S. 126
Thomas, W. 128
Thomson, A.J. 59, 60
Thomson, B. 283
Thorpe, S.C. 59
Tikhov, M. 127
Timms, W.E. 281
Tochihara, H. 126, 128, 129
Tomlin, J.L. 279, 281, 282
Topping, J. 127
Tredgold, R.H. 60

Trottman, W. 281
Troup, J.M. 55
Tsai, M.-H. 130
Tsuchiya, T. 58
Tsuei, K.-D. 127
Tuey, G.A.P. 55
Tunnicliffe, D.L. 280, 281
Turner, R.J. 279, 282
Twigg, M.V. 59

Uchida, K. 57
Ueda, N. 56
Ukei, K. 55, 56
Umbach, E. 127
Uram, K.J. 125, 126
Uren, M.J. 60
Uyeda, N. 56

van der Veen, J.F. 129
van Ewyk, R.L. 57, 58
Van Hove, M.A. 129
van Leeuven, D. 59
van Oirschot, G.J. 59
Vartanyan, A.T. 55
Venables, J.A. 129
Vickerman, J.C. 56
Vijh, A.K. 58
Vilnesov, F.I. 56
Vincett, P.S. 59
Vincett, S. 56
von der Weid, E. 54
Vorburger, T.V. 128
Voronin, V.B. 126

Wagner, H. 57
Wainwright, T.E. 128
Walden, C.C. 57
Wallden, L. 125, 126
Walmsley, D.G. 278, 279, 280, 281, 282
Walsh, P.T. 60
Wandelt, K. 126
Wang, S.W. 128
Warfield, G. 58, 59, 60
Wegner, G. 60
Weibel, E. 129
Weimer, J.J. 127
Weinberg, W.H. 129, 281, 283
Weinert, M. 127
Weiss, F.T. 55
Weiss, M. 126
Wentzel, G. 281
Westgate, C.R. 58
White, H.W. 283
White, J.M. 125, 126
Whitman, L.J. 125
Williams, A.E. 58
Williams, A.R. 127
Williams, E.D. 129
Williams, G.A. 55
Williams, G.P. 127
Williams, R.J.P. 58, 60
Willis, R.F. 279
Wilson, A. 58, 59
Wimmer, E. 125, 127
Winkler, A. 127
Wohltjen, H. 60
Woicik, J.C. 130
Wojciechowski, K.F. 127
Wolf, D. 129
Wolf, E.L. 282
Wolfram, T. 283
Woodruff, D.P. 125
Woods, S.B. 280
Woodward, I. 55
Woratschek, B. 125, 126
Wright, J.D. 55, 56, 57, 58, 60
Wright, J.M. 54
Wyatt, A.F. 282
Wynne, K.A. 55

Yakivchuk, A.I. 126
Yakushi, K. 55
Yalisove, S. 129
Yamada, A. 56
Yamaguchi, J. 60
Yamazoe, N. 58, 59
Yasunaga, H. 58, 60
Yates, J.T., Jr. 125, 126, 128
Yelon, A. 279, 283
Ying, S.C. 127
Yohda, H. 58
Yoshino, K. 58, 60
Young, M.C.J. 60

Zagrubskii, A.A. 56
Zanoni, L.A. 58
Zegarski, B.R. 126
Zeller, H.R. 278
Zhalrova, G.M. 59
Ziolo, R.F. 55
Zisman, W.A. 128
Zobel, M. 57
Zuber, S. 129

PROGRESS IN SURFACE SCIENCE, VOLUME 31

SUBJECT INDEX

Adatoms
  2 D condensation of 114-117
    electrostatic repulsion dominance 117
    K/Cu(001) 114-116
    physical processes 116-117
  ordering of at low coverage, 110
    halo phase 112-113
    LEED observation 111
Adsorption
  alkali-metal, theoretical computational approaches to 107-109
  phthalocyanines, heats of 23
  energetics model of phthalocyanine gas adsorption and 16-17
Alkali-metal monolayers 109-110, 113-114
  2 D condensation of adatoms 114-117
    electrostatic repulsion dominance 117
    K/Cu(001) 114-116
    physical processes 116-117
  high coverage structures 117
    commensurate-incommensurate transition 121-122
    Cs/W(001) 120-121
    K/Cu(001) 119-120
    nearest-neighbor distance, saturation coverage 117-119
  ordering of adatoms, low coverage 110
    halo phase 112-113
    LEED observation 111
  surface reconstruction induction
    ion-scattering studies of 122-123
    microscopic mechanisms of 123-124
    structural model 122, 123
Aluminum-oxide-lead junction, undoped 264, 265
  applications of 265-266
Amplifier
  lock-in 208-209
  reference channel of 212
AS. See Auger spectroscopy
Auger spectroscopy (AS) phthalocyanines 26-27

Barriers
  extended, in elastic state tunnelling 218-220
  non-uniform 236-244
    trapezoidal 237-241
  shapes of 261
    square potential 221-224
Bridge circuitry spectrometer 203, 206

Core-level spectroscopies 97
  EELS observation 98-99
  photoemission observations of 99-101

Dember effect 17
Diffusion pumps 158-161
  fluid for 165-168
Doping, in tunnel junction fabrication
  infusion 188-193
  liquid 186-187
  low temperature 193-194
  reference dopant 182, 183-185
  vapour 182, 186

EELS. See Electron energery loss spectroscopy
Electrodes, tunnel
  aluminum 168-169, 170, 171
  interaction with magnetic impurities 261
  lead 169, 171
  magnesium 169, 173
  silver 171

(Electrodes...cont.)
superconductivity 257-260
very pure 262
Electron energy loss spectroscopy (EELS)
IETS and 146, 147
work function change and 81-97
core electron excitations 84-87
depolarization concept, verified 96-97
at high coverages 93-96
K/Cu (100) 94-95
Muscat-Newns model 81-83, 95-96
harmonization of 87-93
results of 86-90
valence electrons
collective excitations 83-84
single-particle excitations 83
superconductivity and 257-260
Electron tunnelling theory 217. See also Tunnel barrier mathematics
barriers, non-uniform 236-244
elastic state tunnelling
effect of 221-227
extended barrier 218-220, 241
time-dependent perturbation model 227-236
Electronic properties
alkali-metal adsorption, theoretical computational approaches 107-109
core level spectroscopies 97-101
EELS and work function change 81-97
valence resonance detection, direct 101-107
work function change 67-81
Evaporation
pressures for 173
sources for 171-172
Evaporator operation 164-165

Frequency doubler 212

Gurney model, work function change
depolarization field and 79
image charge model 75-77
polarizability and 79-81
screening energy and 74
surface electric dipole layer and 74
valence width level and energy variation 77-78

Heats of adsorption, phthalocyanines 23

IETS. See Inelastic electron tunnelling spectroscopy
Inelastic electron tunnelling 241-243
Inelastic electron tunnelling spectroscopy (IETS), 136-137
applications of
adhesion 266
analysis of trace substance 269-270
in biological systems 270-271
catalysis, hetergeneous 273-274
chemisorption 272-273
corrosion 267-268
electronic transition 268-269
lubrication 266
radiation damage 272
comparison with other techniques 145-148
EELS and 146, 147
IR and 145, 146, 147-148
IRAS and 145, 146
limitations of 144-145
raman and 147
resolution of 144
sensitivity of 143
selection rules and 263
spectral range of 143
strengths and weaknesses of 143-145
Infrared (IR) spectroscopy
adsorbed species on phthalocyanines 18-21
high gas concentration studies and 19
temperature and 20
vibration frequency shifts and 19

(Infrared..., cont.)
water and acids on 19
Infrared reflection absorption spectroscopy (IRAS)
IETS and 145, 146, 147-148
IR spectroscopy. See Infrared spectroscopy
IRAS. See Infrared reflection absorption spectroscopy

Jellium model, work level change 81

Marquardt's search technique 253
Modulation
frequency choice for 208
technique in tunnel junction fabrication 198-203

Oxidation, tunnel junction fabrication 173-175

Phase sensitive detector 209-212
Photoconductivity
of phthalocyanine acceptor and donor gases 49-51
Photoemission spectroscopy
inverse 102-107
observation of adsorbate core level 99-101
Phthalocyanine films in electron-donor gases, 33-35
amonia and 47-48
chemical modification of ligand structure 43-44
fluorine effect on 46
Langmuir-Blodgett films 43-45
NO and 35
NO^2 conductance and 37-39, 40, 44-46, 47
oxygen and 33-35, 36, 37
p- and n-type 36
response kinetcis and 41-43
sublimed
substrate effect on 7-9, 11, 36
temperature and response 43
water vapor and 46-47
Phthalocyanines
acceptor and donor gases on photoconductivity and 49-51
(Phthalocyanines, cont.)
semiconductivity and 28-48
adsorbed species on 18-28
AS and 26-27
heats of adsorption and 23
IR spectroscopy and 18-21
photovoltage studies of, surface 27-28
thermal desorption spectroscopy and 21-22
XPS and 23-26
adsorption of gases on 12-18
chemical sensor applications of 52-54
for electron acceptor gases 52-53
for electron donor gases 53
surface acoustic wave and 53-54
crystal structure of 6
films
morphology of 6
oriented 9-10
quality of, postdeposition 12
sublimed 7-9, 11
gas adsorption on
adsorption energetics model and 16-17
charge transfer process and 14-15
chemical reactions 17-18
electronic energy levels 14-15
ionization and polarizable energies of 13-14
surface heterogeneity effects 15-16
planar and nonplanar metals and 4-5
studies of 10-11
structure of 4-12
studies of 3-4, 10-11
sublimed films 7-9, 11
substrate effects on 7-9, 11, 36

Raman spectroscopy
IETS and 147
Resonant circuitry spectrometer 204-205, 206-207

Semiconductivity
of acceptor and donor gases 28-48

hydrogen treatment and 31
NO^2 adsorption and 31-32
oxygen and 29-31
phthalocyanine films in electron-donor gases, 33-35
amonia and 47-48
chemical modification of ligand structure 43-44
experimental factors and 39
fluorine effect on 46
Langmuir-Blodgett films 43-45
NO 35
NO^2 conductance 37-39, 40, 44-46, 47
oxygen 33-35, 36, 37
p- and n-type 36
response kinetics 41-43
substrate effect on 36
temperature and response 43
water vapor and 46-47
phthalocyanine single crystals 28-29
surface charge transfer interaction snd 32
Substrates, in tunnel junction fabrication 151-153
cleaning of 153-155
Superconductivity electrodes 257-260
Surface photovoltage sudies phthalocyanines 27-28
Dember effect and 27
work function, photovoltaic modulation of 27-28
Surface reconstruction, alkali-metal-induced
ion-scattering studies of 122-123
microscopic mechanisms of 123-124
structural model 122, 123

Thermal desportion spectroscopy 21-22
Tunnel barrier mathematics
curve fitting 251-253
derivatives, evaluation of 251
interpolation 246-249
matrix inversion 254-256
numerical integration 249-250

(Tunnell barrier..., cont.)
problem of unknown parameters 244-246, 247
search technique 253
Tunnel junction fabrication
crystal microbalance 176, 179, 180
diffusion pumps in 158-161
doping techniques 182-194
electrode for 168-176
evaporation in
pressures 173
sources 171-172
evaporator operation 164-165
insulating layer formation in 175, 176
oxidation and 173-175
procedure for 152-153, 168-182
pump fluid choice 165-158
criteria for 166
reference dopant 182, 183-185
storing junctions 195
substrates and 151-153
cleaning procedure for 153-155
tunnel junction and 149-150
tunnel sandwiches 171
vacuum deposition techniques and 150-151
vacuum evaporator in 154-157
cleaning procedure 161-164
vacuum production 157-158
Tunnel junction instrumentation
acquisition system, I-V and d_2 data collection 212-216
audio frequency signal generator 207
bridge circuitry spectrometer 203, 206
four-point probe 197-198
frequency doubler 212
lock-in amplifier 208-209
reference channel of 212
modulation frequency choice 208
modulation technique 198-203
phase sensitive detector 209-212
preamplifier 208
resonant circuitry 204-205, 206-207
time constant 212

Tunnelling anomalies
barrier shapes 261
injection process at very pure electrode 262
interaction electrodes with magnetic impurities 261
resolution 262-263
selection rules 263
superconductivity electrodes 257-260
Tunnelling phenomenon
concept of 137-139
elastic
extended barrier 218-220
tunnel effect in 221-227
inelastic 136-137, 142
mechanisms of 140-142
metal-insulator-metal system and 139-140
Tunnelling spectroscopy. See also Tunnelling phenonmenon
concept of 137-139
electron tunnelling phenomenon and 137-142
IETS 136-137
vibrational techniques 135-136

Vacuum deposition techniques 150-151
Vacuum evaporator 154-157, 161-164
Vacuum production 157-158
Valence resonances, alkali-metal adatoms
inverse photoemission spectroscopy 102-107
metastable deexcitation spectroscopy 101-102
Vibrational spectroscopies 135-136

Work function
photovoltaic modulation of 27-28
Work function change
core-level spectroscopies 97-101
EELS and 81-97
experimental results on 70-74
Gurney model 74-81
jellium model 81
measurement methods
diode 68-69
field emission 70
secondary electron 69
vibrating capacitator 68
Muscat-Newns model and 81-83
valence resonances detection, direct 101-109

XPS. See X-ray photoelectron spectroscopy
X-ray photoelectron spectroscopy (XPS)
adsorbed species information 26
lead phthalocyanine 25
limitations of 23-24
molecule structure in 24
oxygen on phthalocyanine surface 25